TP-LINK®

User Guide

TC-7610

DOCSIS 3.0 Cable Modem

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FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/ TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1) This device may not cause harmful interference.

2) This device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

"To comply with FCC RF exposure compliance requirements, this grant is applicable to only Mobile Configurations. The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."

CONTENTS

Package Contents

The following items should be found in your package:

➢ One TC-7610 DOCSIS 3.0 Cable Modem

➢ One Power Adapter for TC-7610 DOCSIS 3.0 Cable Modem

➢ Quick Installation Guide

➢ One RJ45 cable

☞ Note:

Make sure that the package contains the above items. If any of the listed items are damaged or missing, please contact with your distributor.

Chapter 1. Introduction

Thank you for choosing the **TC-7610 DOCSIS 3.0 Cable Modem** .

1.1 Product Overview

TP-LINK's DOCSIS 3.0 Cable Modem TC-7610 is designed for delivers ultra-high speed data through coax used in HFC networks. It's an incredibly robust device allowing users to access internet with Over 300 Mbps downstream data rates, 120 Mbps upstream data rates and share it with a Gigabit Ethernet port.

TC-7610 complies with DOCSIS 3.0, supports channel bonding of up to 8 downstream channels and 4 upstream, combined with Enhanced security of AES encryption, IPv4 and IPv6 dual stack, make it future-Proof.

1.2 Main Features

➢ Complies with DOCSIS/EuroDOCSIS 3.0 and backwards compatible to DOCSIS 1.0, 1.1 and 2.0 provides users comprehensive network compatibility

➢ Channel bonding of up to 8 downstream channels and 4 upstream channels provide data rates Over 300 Mbps for downstream, and 120 Mbps for upstream

➢ IPv4 and IPv6 dual stack make it future-Proof

➢ Gigabit port ensure ultimate fast transfer speeds

➢ Remotely configurable and monitorable using SNMP and TFTP

➢ Well-defined LEDs clearly display device and network status

➢ Quick and hassle free installation

1.3 Conventions

The Modem or device mentioned in this User Guide stands for TC-7610 without any explanations.

Parameters provided in the pictures are just references for setting up the product, which may differ from the actual situation.

1.3 Conventions

Chapter 2. Hardware Installation

2.1 The Front Panel

The modem router's LEDs are located on the side panel (View from top to bottom). They indicate the device's working status. For details, please refer to LEDs Explanation.

LEDs Explanation:

Name	Status	Indication
⏻ (Power)	Off	The modem is powered off.
	On	The modem is powered on.
(Downstream)	Off	The initialization is not started, or has failed.
	White	The modem is synchronized with one channel.
	Green	The modem is synchronized with more than one channel.
	Flashing	The modem is scanning for a downstream channel.
(Upstream)	Off	The initialization is not started, or has failed.
	White	The modem is synchronized with one channel.
	Green	The modem is synchronized with more than one channel.
	Flashing	The modem is scanning for an upstream channel.
(Internet)	Off	Internet service is not available.
	On	Internet service is available.
	Flashing	The modem is initializing.
(LAN)	On	The LAN port is connected.
	Off	The LAN port is not connected.
	Flashing	The LAN port is sending or receiving data.

2.2 The Back Panel

➢ **RESET**: With the modem powered on, use a pin to press and hold the RESET button for at least 8-10 seconds. And the modem will reboot to its factory default settings.

➢ **LAN:** Through this port, you can connect the modem to your PC or the other Ethernet network device.

➢ **Cable:** Through this port, you can connect the modem to coaxial cable.

➢ **Power**: The power plug where you will connect the power adapter.

2.3 Installation Environment

➢ The Product should not be located where it will be exposed to moisture or excessive heat.

➢ Place the Modem in a location where it can be connected to the various devices as well as to a power source.

➢ Make sure the cables and power cord are placed safely out of the way so they do not create a tripping hazard.

➢ The Modem can be placed on a shelf or desktop.

➢ Keep away from the strong electromagnetic radiation and the device of electromagnetic sensitive.

Chapter 3. Connecting the Modem

3.1 System Requirements

➢ Broadband Internet Access Service (Cable).

➢ PCs with a working Ethernet Adapter and an Ethernet cable with RJ45 connectors.

➢ TCP/IP protocol on each PC.

➢ Web browser, such as Microsoft Internet Explorer, Mozilla Firefox or Apple Safari.

3.2 Connecting the hardware

Before installing the device, please make sure your broadband cable service provided by your ISP is available. If there is any problem, please contact your ISP. Before cable connection, cut off the power supply and keep your hands dry. You can follow the steps below to install it.

Step 1: Connect the coaxial cable to the modem.

Step 2: Connect the power adapter to the modem.

Step 3: Connect your computer to the modem using an Ethernet cable.

Step 4: Wait about 15 minutes for the modem to synchronize with the Internet service provider's (ISP) server and then make sure the following LEDs are on.
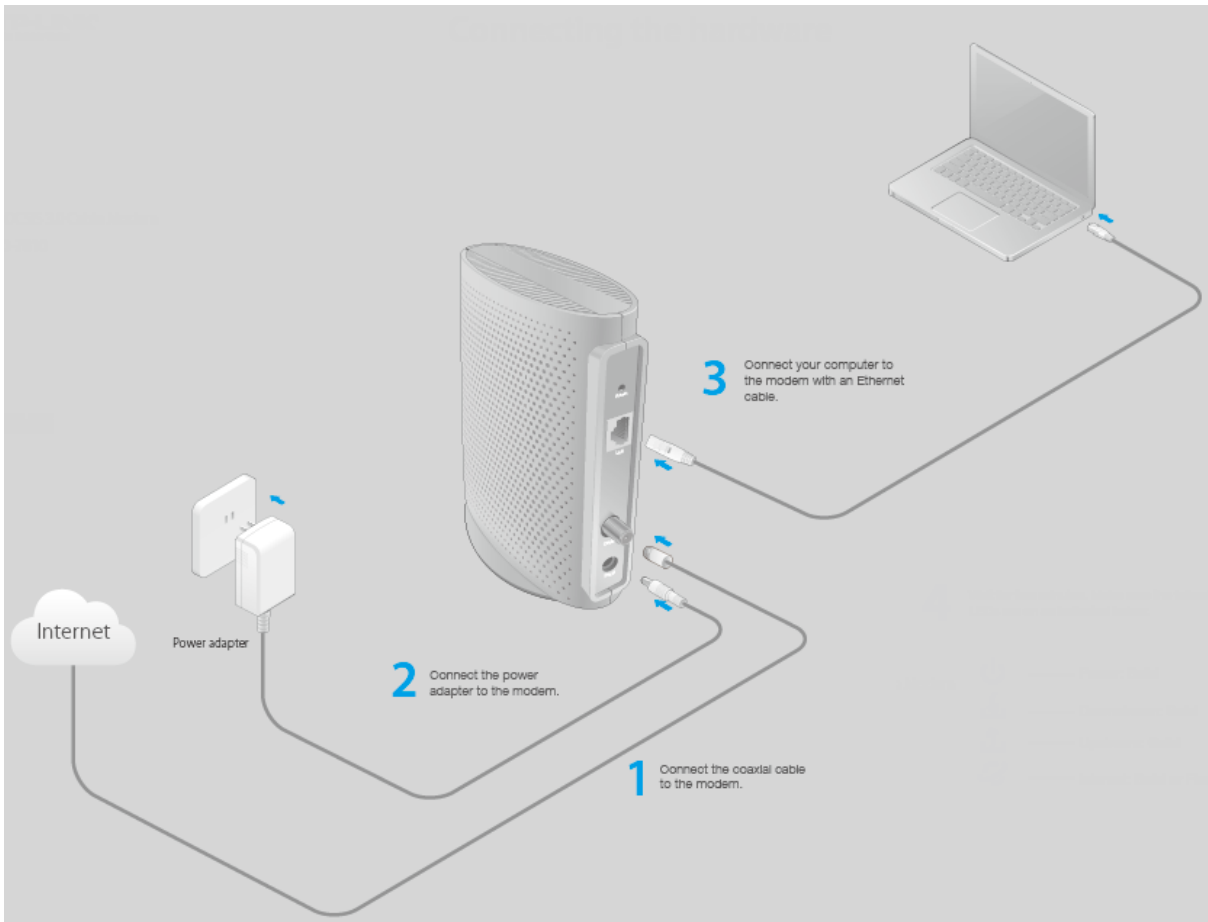
⏻ (Power): On

⌄ (Downstream): On

⌃ (Upstream): On

⊘ (Internet): On

☞ **Note**：

The product should be connected to cable distribution system that grounded (earthed) in accordance with ANSI/NFPA 70, the National Electrical Code (NEC), in particular Section 820.93 - Grounding of Outer Conductive Shield of a Coaxial Cable.

3.3 Activating the cable modem

Step 1: Make sure the computer connected to the modem is set to dynamically obtain an IP address.

Step 2: Contact your ISP (Comcast, Time Warner Cable, COX, Charter, Cablevision) to activate the modem. During activation, you will need your account information, the serial number and MAC address which can be found on the product label of the modem.
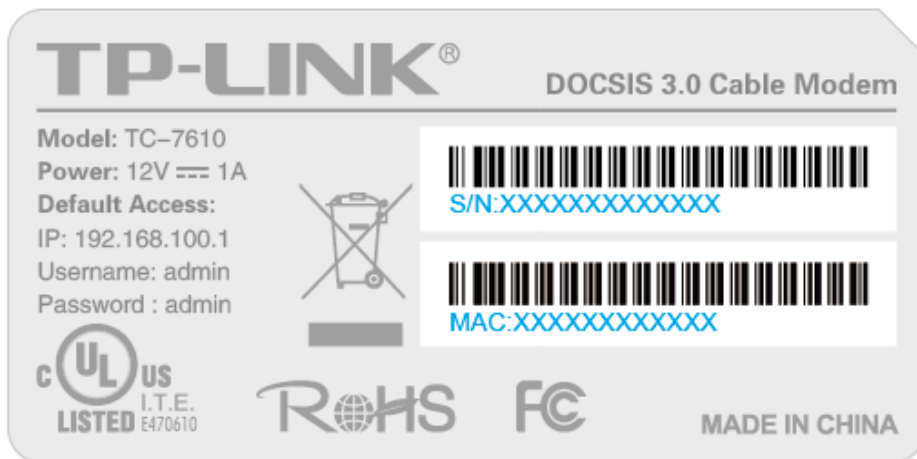
☞ **Note：**

If your ISP is Comcast or TIme Warner Cable (TWC), you can activate as follows:

1. Open a web browser. You should be automatically redirected to your service provider's self-activation page. If not, go to **www.comcast.com/activate** for Comcast Xfinity or **www.timewarnercable.com** for TWC.

2. Follow the on-screen instructions to activate the modem. Make sure that you have your account information ready.

If you are unable to activate your modem, call your ISP's customer service:

Comcast Xfinity: 1-800-934-6489

Time Warner Cable: 1-855-704-4503

Step 3: Test your Internet connection using a web browser and type in a valid URL (for example, http://www.tp-link.com).

☞ **Note：**

If the Internet is not accessible, contact your ISP and make sure that the modem is activated.

For advanced configuration, log into the modem's web interface at http://192.168.100.1, and enter admin (all lowercase) for both username and password when prompted.

Chapter 4. Software Configuration

This User Guide recommends using the "Quick Installation Guide" for first-time installation. If you want to know more about this device, maybe you will get help from this chapter to configure the advanced settings through the Web-based Utility.

4.1 TCP/IP Configuration

The default IP address of the **TC-7610** DOCSIS 3.0 Cable Modem is 192.168.100.1. And the default Subnet Mask is 255.255.255.0. we use all the default values for description.

Connect the local PC to the LAN/WAN port of the modem router. And then you can configure your PC in the following way.

1) Set up the TCP/IP Protocol in "**Obtain an IP address automatically**" mode on your PC. If you need instructions as to how to do this, please refer to Appendix C: Configure the PC.

2) Then the built-in DHCP server will assign IP address for the PC.

Now, you can run the Ping command in the command prompt to verify the network connection. Please click the **Start** menu on your desktop, select **run** tab, type **cmd** or **command** in the field and press **Enter**. Type *ping 192.168.100.1* on the next screen, and then press **Enter**.

If the result displayed is similar to the screen below, the connection between your PC and the router has been established.

```
Pinging 192.168.100.1 with 32 bytes of data:

Reply from 192.168.100.1: bytes=32 time<1ms TTL=64
Reply from 192.168.100.1: bytes=32 time<1ms TTL=64
Reply from 192.168.100.1: bytes=32 time<1ms TTL=64
Reply from 192.168.100.1: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.100.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

If the result displayed is similar to the screen shown below, it means that your PC has not connected to the router.

You can check it following the steps below:

1) **Is the connection between your PC and the modem correct?**

The LEDs of LAN port which you link to the device and the LEDs on your PC's adapter should be lit.

2) **Is the TCP/IP configuration for your PC correct?**

Make sure the computer connected to the modem is set to dynamically obtain an IP address.

4.2 Login

To access the configuration utility, open a web-browser and type the default address 192.168.100.1 in the address field of the browser.

After a moment, a login window will appear, similar to the Figure 3-2. Enter **admin** for the Username and Password, both in lower case letters. Then click the **Login** button or press the Enter key.

Then you can see the current status information about the modem in this page.

4.3 Status

There are four submenus under the Status menu, **Connection, Software, Security** and **Event Log.** Click any of them, and you will be able to configure the corresponding function.

4.3.1 Connection

Choose menu "**Status → Connection**", you can see the information of startup procedure, downstream/upstream bonded channels and time information.

Connection Information

Startup Procedure

Procedure	Status	Comment
Acquire Downstream Channel	483000000 Hz	In Progress
Connectivity State	In Progress	Not Synchronized
Boot State	In Progress	Unknown
Configuration File	In Progress	
Security	Disabled	Disabled

Downstream Bonded Channels

Channel	Lock Status	Modulation	Channel ID	Frequency	Power	SNR	Correctables	Uncorrectables
1	Not Locked	unknown	0	483000000 Hz	-18.4 dBmV	0.0 dB	0	0
2	Not Locked	Unknown	0	0 Hz	0.0 dBmV	0.0 dB	0	0
3	Not Locked	Unknown	0	0 Hz	0.0 dBmV	0.0 dB	0	0
4	Not Locked	Unknown	0	0 Hz	0.0 dBmV	0.0 dB	0	0
5	Not Locked	Unknown	0	0 Hz	0.0 dBmV	0.0 dB	0	0
6	Not Locked	Unknown	0	0 Hz	0.0 dBmV	0.0 dB	0	0
7	Not Locked	Unknown	0	0 Hz	0.0 dBmV	0.0 dB	0	0
8	Not Locked	Unknown	0	0 Hz	0.0 dBmV	0.0 dB	0	0

Total Correctables	Total Uncorrectables
0	0

Upstream Bonded Channels

Channel	Lock Status	US Channel Type	Channel ID	Symbol Rate	Frequency	Power
1	Not Locked	Unknown	0	0 Ksym/sec	0 Hz	0.0 dBmV
2	Not Locked	Unknown	0	0 Ksym/sec	0 Hz	0.0 dBmV
3	Not Locked	Unknown	0	0 Ksym/sec	0 Hz	0.0 dBmV
4	Not Locked	Unknown	0	0 Ksym/sec	0 Hz	0.0 dBmV

Time Information

CM IP Address:
Duration:
Expires:
Current Systime Time: --- --- -- --:--:-- ----

4.3.2 Software

Choose menu "**Status → Software**", you can see the device information and system information.

Software Information

This page displays information on the current system software.

Device Information

Standard Specification Compliant	DOCSIS 3.0
Hardware Version	1.0
Software Version	v1.0.1 Build 20150308 Rel62000
Cable Modem MAC Address	c4:e9:84:f8:b6:8f
Cable Modem Serial Number	TPLT001212350
CM certificate	Installed

System Information

System Up Time	0 days 00h:01m:41s
Network Access	Denied
Cable Modem IP Address	---.---.---.---

4.3.3 Security

Choose menu "**Status** ➔ **Security**", you can see the screen below. Here you can set the a new password to log in the modem's web-based management page.

Security

This page allows configuration of administration access privileges.

Current Password

New Password

Re-Enter New Password

Apply

4.3.4 Event Log

Choose menu "**Status** ➔ **Event Log**", you can view and clear the logs of the modem.

SNMP Event Log

This page displays the contents of the SNMP event log.

Time	Priority	Description

Clear Log

➢ **Clear Log –** Click to delete all the logs.

Chapter 5. Logout

Choose "**Logout**" and click **YES**, and you will back to the login screen.

Appendix A: Specifications

Specification		
Product Description	DOCSIS 3.0 Cable Modem	
Physical Specifications		
Interface	1 F-Connector (female 75 Ω)	
	1 10/100/1000 Mbps Ethernet Interface (RJ45)	
	1 Power Jack	
Button	1 RESET Button	
DOCSIS Features		
Standards	DOCSIS 3.0	
Capture Bandwidth	Full Band Capture windows	
MoCA Reject Filter	Internal MoCA Reject Filter	
Downstream		
Channel Binding	Up to 8	
Modulation	64 or 256 QAM	
Maximum Data Rate	DOCSIS	Up to 343.072 Mbps
Bandwidth	DOCSIS	48 MHz(8 channels) / 6MHz (single channel)
Symbol Rate	DOCSIS	64 QAM 5.057 Msym/s; 256 QAM 5.361 Msym/s
Operating Level Range	−15 to 15 dBmV	
Bonded Channel RF	Level Tolerance	10dBmV
	Input Impedance	75 Ω
Frequency Range	DOCSIS	108 to 1002 MHz (edge to edge)
Frequency Plan	DOCSIS	Annex B
Security	DOCSIS 3.0 Security (BPI+, EAE, SSD)	
Upstream		
Channel Binding	Up to 4	
Modulation	QPSK and 8, 16, 32, 64, 128 QAM, optional 256 QAM	
Maximum Data Rate	DOCSIS	Up to 131.072 Mbps
Channel Width	200 kHz, 400 kHz, 800 kHz, 1.6 MHz,3.2 MHz, 6.4 MHz	
Symbol Rate	160, 320, 640, 1280, 2560, 5120 ksym/s	
Level range	TDMA	Pmin to +57 dBmV (32 QAM, 64 QAM)
		Pmin to +58 dBmV (8 QAM, 16 QAM)
		Pmin to +61 dBmV (QPSK)
	Note: A - TDMA max output power reduced 3dB when transmitting two channels and 6dB when transmitting 3 or 4 channels	
	S-CDMA	Pmin to +56 dBmV (all modulations), where:
		Pmin=+17 dBmV, 1280 kHz modulation rate
		Pmin=+20 dBmV, 2560 kHz modulation rate
		Pmin=+23 dBmV, 5120 kHz modulation rate

	Note: S-CDMA max output reduced 3dB when transmitting 2 or more channels	
Output Impedance	75 Ω	
Frequency Range	DOCSIS	5-42 MHz (edge to edge),
Network Function		
IP Stack	Supports IPv4 and IPv6 dual stack	
DHCP	DHCP Client	
VPN Passthrough	PPTP, L2TP, IPSec	
Muticast	Support IGMP v1/v2/v3	
Flow Control	802.3x flow control at the UNI	
Management and Maintance		
Managed by Web, and SNMP, and TFTP		
Reset to Factory default by Reset button		
Real-time statistics、System Log		
Others		
Operation System	Windows 8/Windows 7/ Windows Vista™, Service Pack 1 or later/ Windows®XP, Service Pack 2 or later/ Mac®10.4 or later (Ethernet connection only) UNIX®Linux®	
Safety, Emission and others	FCC, UL	
	Cablabs	
	RoHS compliant	
Protocol Support	**Network:** IP, ICMP, ARP **Transport:** TCP, UDP **Application:** SNMP (v1, 2c and 3), TFTP,DHCP, ToD	
Power	Input	12VDC/1A
Environment	**Operating Temperature**	32 °F to 104 °F (0 °C to 40 °C)
	Storage Temperature	−22 °F to 158 °F (−30 °C to 70 °C)
	Operating Humidity	5 to 95% R.H. (non-condensing
	Storage Humidity	5%～95% non-condensing

Appendix B: Troubleshooting

T1. What can I do if I cannot access the Internet?

1) Make sure that all cables are connected properly and securely to the modem.

2) Contact your ISP to verify the modem is activated. If the modem is not activated, your ISP will activate it for you.

3) Check the device that is connected to the modem and make sure that the device is set to obtain an IP address automatically.

4) Power cycle the cable modem by unplugging the power adapter from the electrical outlet and plugging it back in.

5) Reset the cable modem. Please refer to FAQ > Q3 for instruction.

6) Contact our Technical Support if the problem persists.

T2. How do I access the cable modem's web interface?

To access the cable modem's web interface, follow these steps:

1) Connect your computer to the cable modem using an Ethernet cable.

2) Open a web browser, enter http://192.168.100.1 in the address bar, and then press Enter. Log in using **admin** (all lowercase) for both username and password.

☞ **Note**:

If the login page does not appear, try the following:

1) Check if the computer is set to a static for fixed IP address. If so, change the setting to obtain an IP address automatically. If you need instructions as to how to do this, please refer to Appendix C: Configure the PC.

2) Use another web browser.

3) Unplug and reconnect both ends of the Ethernet cable.

T3. How do I restore the modem to its factory default settings?

With the modem powered on, press and hold the **Reset** button on the rear panel of the modem until all LEDs turn on momentarily, then release the button.

T4. How can I reset the password to the cable modem's web interface?

If you have changed the password and have forgotten it, you must restore the cable modem to the factory defaults. This will reset the password back to admin.

☞ **Note：**

For more details about Troubleshooting and Technical Support contact information, please log on to our Technical Support Website: **http://www.tp-link.com/en/support**

Appendix C: Configure the PC

In this section, we'll introduce how to install and configure the TCP/IP correctly in Windows 7. First make sure your Ethernet Adapter is working, refer to the adapter's manual if needed.

1. On the Windows taskbar, Right-click Network icon　, and select Open Network and Sharing Center > Change adapter settings.
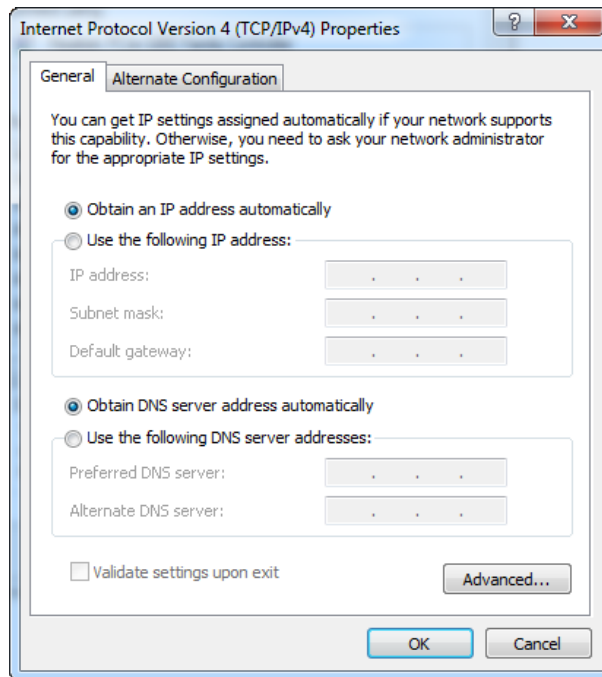
20

2. Right-click your wired network connection (Local Area Connection or Ethernet by default), and select Properties.
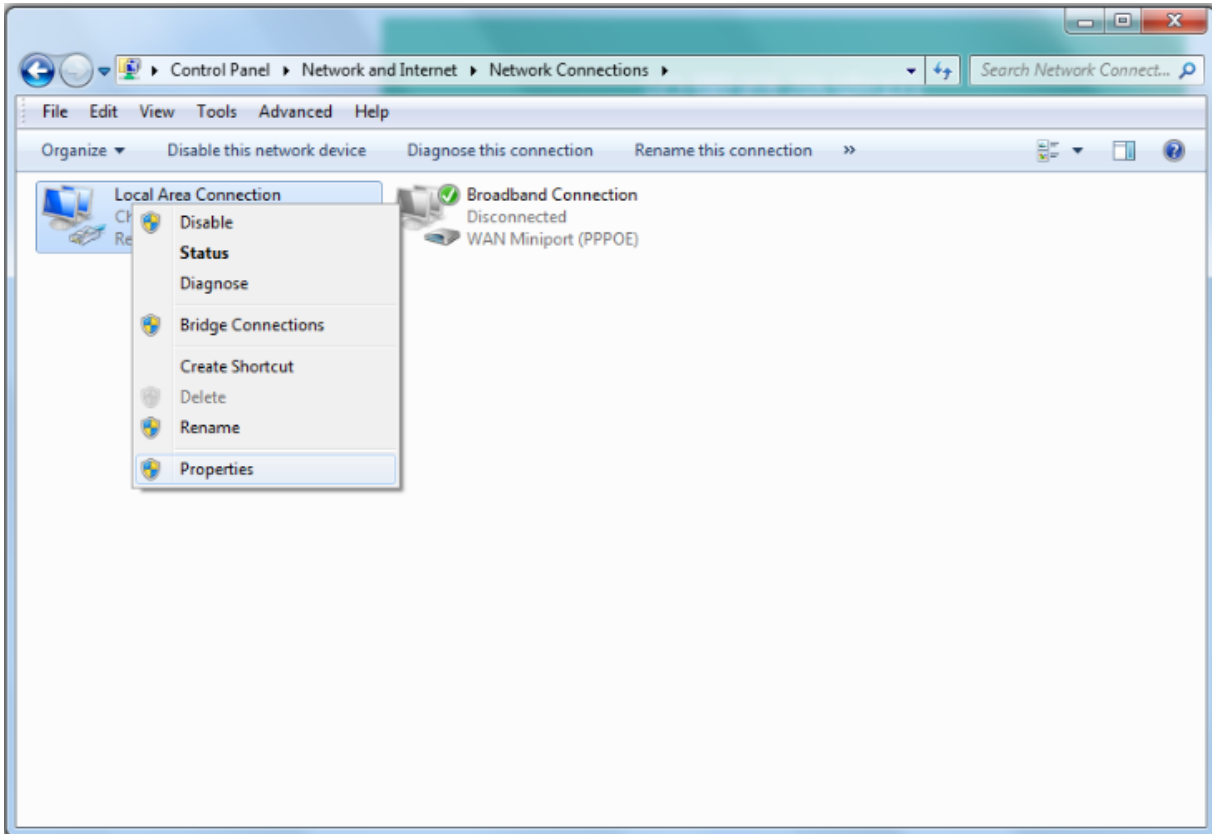
3. Double-click Internet Protocol Version 4 (TCP/IPv4).
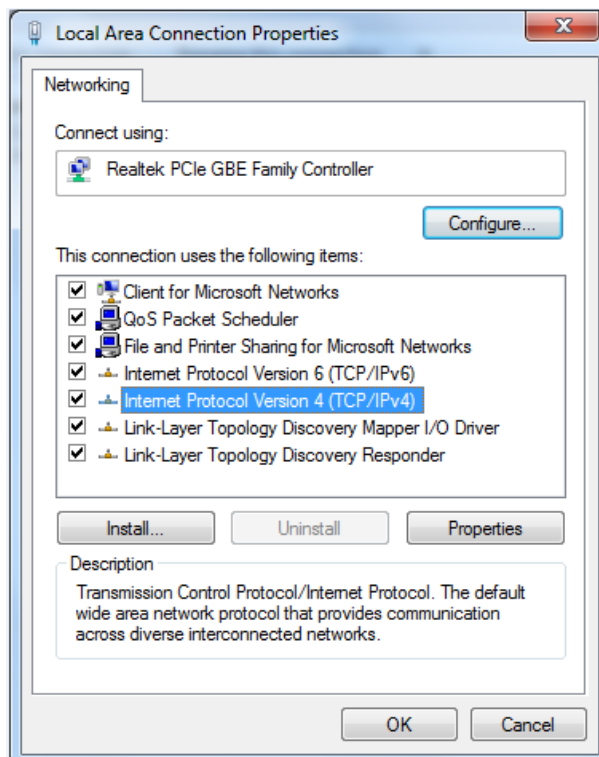
4. Select Obtain an IP address automatically and Obtain DNS server address automatically.

5. Click OK to save the settings.

Appendix D: Technical Support

■ For more troubleshooting help, go to:
http://www.tp-link.com/en/support/faq

■ To dow nload the latest Firmw are, Driver, Utility and User Guide, go to:
http://www.tp-link.com/en/support/download

■ For all other technical support, please contact us by using the follow ing details:

Global
Tel: +86 755 2650 4400
Fee: Depending on rate of different carriers, IDD.
E-mail: support@tp-link.com
Service time: 24hrs, 7 days a week

USA/Canada
Toll Free: +1 866 225 8139
E-mail: support.usa@tp-link.com (USA)
　　　support.ca@tp-link.com (Canada)
Service time: 24hrs, 7 days a week

Turkey
Tel: 0850 7244 488 (Turkish Service)
Fee: Depending on rate of different carriers.
E-mail: support.tr@tp-link.com
Service time: 09:00 to 21:00, 7 days a week

Ukraine
Tel: 0800 505 508
Fee: Free for Landline; Mobile: Depending on rate of different carriers
E-mail: support.ua@tp-link.com
Service time: Monday to Friday, 10:00 to 22:00

Brazil
Toll Free: 0800 608 9799 (Portuguese Service)
E-mail: suporte.br@tp-link.com
Service time: Monday to Friday, 09:00 to 20:00; Saturday, 09:00 to 15:00

Indonesia
Tel: (+62) 021 6386 1936
Fee: Depending on rate of different carriers.
E-mail: support.id@tp-link.com
Service time: Sunday to Friday, 09:00 to 12:00, 13:00 to 18:00 *Except public holidays

Australia/New Zealand
Tel: NZ 0800 87 5465 (Toll Free)
AU 1300 87 5465 (Depending on 1300 policy.)
E-mail: support.au@tp-link.com (Australia)
support.nz@tp-link.com (New Zealand)
Service time: 24hrs, 7 days a week

Germany/Austria
Tel: +49 1805 875 465 (German Service)
+49 1805 TPLINK
+43 820 820 360
Fee: Landline from Germany: 0.14EUR/min.
Landline from Austria: 0.20EUR/min.
E-mail: support.de@tp-link.com
Service time: Monday to Friday, 09:00 to 12:30 and 13:30 to 18:00. GMT+1 or GMT+2 (DST in Germany)
*Except bank holidays in Hesse

Singapore
Tel: +65 6284 0493
Fee: Depending on rate of different carriers.
E-mail: support.sg@tp-link.com
Service time: 24hrs, 7 days a week

UK
Tel: +44 (0) 845 147 0017
Fee: Landline: 1p-10.5p/min, depending on the time of day. Mobile: 15p-40p/min, depending on your mobile network.
E-mail: support.uk@tp-link.com
Service time: 24hrs, 7 days a week

Italy
Tel: +39 023 051 9020
Fee: Depending on rate of different carriers.
E-mail: support.it@tp-link.com
Service time: Monday to Friday, 09:00 to 13:00; 14:00 to 18:00

Malaysia
Toll Free: 1300 88 875 465
Email: support.my@tp-link.com
Service time: 24hrs, 7 days a week

Poland
Tel: +48 (0) 801 080 618
+48 223 606 363 (if calls from mobile phone)
Fee: Depending on rate of different carriers.
E-mail: support.pl@tp-link.com
Service time: Monday to Friday, 09:00 to 17:00. GMT+1 or GMT+2 (DST)

France
Tel: 0820 800 860 (French service)
Fee: 0.118 EUR/min from France
Email: support.fr@tp-link.com
Service time: Monday to Friday, 09:00 to 18:00 *Except French Bank holidays

Switzerland
Tel: +41 (0) 848 800 998 (German Service)
Fee: 4-8 Rp/min, depending on rate of different time.
E-mail: support.ch@tp-link.com
Service time: Monday to Friday, 09:00 to 12:30 and 13:30 to 18:00. GMT+1 or GMT+2 (DST)

Russian Federation
Tel: 8 (499) 754 5560 (Moscow NO.)
8 (800) 250 5560 (Toll-free within RF)
E-mail: support.ru@tp-link.com
Service time: From 09:00 to 21:00 (Moscow time)
*Except weekends and holidays in RF